

**UNIVERSITY OF NORTH TEXAS**  
**ENGR 2332 Mechanics of Materials Spring 2024 Syllabus**

**Instructor:** Dr. Mark Wasikowski, Mechanical Engineering

**Course Time and Place:** MW 4 – 5:20 K110

**Office and Hours:** F101L. by appointment in person or via zoom

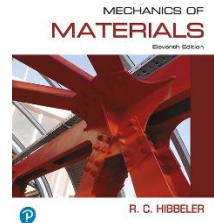
**Contact information:** [mark.wasikowski@unt.edu](mailto:mark.wasikowski@unt.edu) (do NOT use CANVAS email)

**Course format:** in-person only. No remote participation.

**Catalog Description:** Relationships among loads placed on structural components; shape and size of components; resultant stresses, strains, and deflections of components.

**Pre-requisite:** ENGR 2301 (Statics) with a grade of C or better.

**Required Text:** Mechanics of Materials, 11<sup>th</sup>, Hibbeler, Pearson, Mastering eBook



**Course Objectives:**

1. Concept of stress / strain, influence of loading direction on deformation.
2. Understand impact of applied loads on design.
3. Axial loaded member extension subject to tensile / thermal stress.
4. Understand influence of torsional stresses on deformation of bars.
5. Understand shear force and bending moments diagrams.
6. Understand principal stress based on applied loads.
7. Understand the influence of location of loads on deflection.
8. Understand effects of end conditions on deformation.

**Student Learning Outcomes:**

- a) Calculate stress-strains relations for typical engineering applications.
- b) Analyze tensile loading of members.
- c) Analyze torsion in beams.
- d) Analyze beams in deflection.
- e) Calculate principal stresses and angular dependence of stress.
- f) Analyze columns under compression.
- g) Analyze buckling of columns.

**Grades:** A  $\geq$  90, B  $\geq$  80, C  $\geq$  70, D  $\geq$  60, F < 60. No curve or rounding.

1. 25%: classroom. Attendance, quizzes.
2. 15%: independent study: textbook reading and homework – Pearson Mastering and CANVAS
3. 20%: binder: organization skills. original class notes, example, derivations, homework, class questions
4. 20%: midterm exam Wednesday, 6 March, 4 – 5.20 pm
5. 20%: final exam Saturday, 4 May, 1.30-3.30 pm

Student responsibility to attend class, check CANVAS, assignments, exams, etc. Class attendance is mandatory. Electronic CANVAS interface required for class. Homework assigned Wednesday and due following Monday. No late quizzes, exams, or homework accepted since solutions are available immediately after homework is due. Quizzes are announced or unannounced and can occur anytime during class. Must be present at that time for credit. No make-up quizzes or exams without documented excused absence.

**Policies:** Applicable policies on UNT website: Emergency Notification & Procedures, acceptable student behavior / student code of conduct, academic integrity, ADA, SPOT evaluations, retention of student records, Prohibition of Discrimination, Harassment, Retaliation, Sexual Assault Prevention, federal VISA regulations, Academic Support & Student Services.

Any student found cheating fails the course and notify UNT Office of Academic Integrity.

**Academic Honesty:** Honesty and integrity are paramount in engineering and technology careers. Students are expected to perform their own work. Any student found cheating will fail the course and report to UNT Office of Academic Integrity. No cell phones or any Internet / electronic related devices will be allowed in quizzes and exams.

**Tentative Course Schedule:**

- Week 1: Introduction
- Week 2: Stress and Strain
- Week 3: Mechanical Properties of Materials
- Week 4: Axial Loads
- Week 5: Torsion Loads
- Week 6: Bending Loads
- Week 7: Shear Loads
- Week 8: midterm exam
- Week 9: Spring break
- Week 10: Combined Loading
- Week 11: Stress Transformation
- Week 12: Strain Transformation
- Week 13: Beam / Shaft Design
- Week 14: Deflection
- Week 15: Buckling
- Week 16: Final Exam Review

**Syllabus Changes:** Instructor reserves the right to change or clarify the syllabus. Any changes will be announced in class and posted to CANVAS with accompanying email to the student's UNT email address.